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(56) Documents Cited
WO 97/18872 A1 WO 94/20185 A DE 008901306 U
DE 002651471 A1 FR 002362649 A US5681201 A

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Online: EPODOC, PAJ, WPI.

(54) Abstract Title
Modular doll's house.

(57) A miniature building or doll house constructed from a "skeleton" comprising floor(s) (1,2), ceiling (3) and pillars (4). Openings (14) are provided in the skeleton between adjacent pillars, floor and ceiling which are adapted to receive removable panels. The removable panels may comprise a panel (11) which includes a door, a panel (12) which includes a window or a solid wall forming panel (13). The removable panels are held within the opening by spring biassed dowels (14) projecting from an edge. The various removable panels may easily and repeatedly be fitted and removed and are interchangeable.

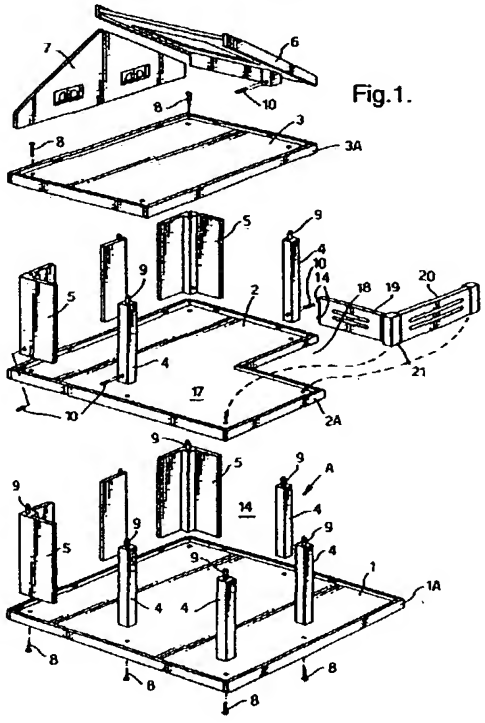

Fig.1.

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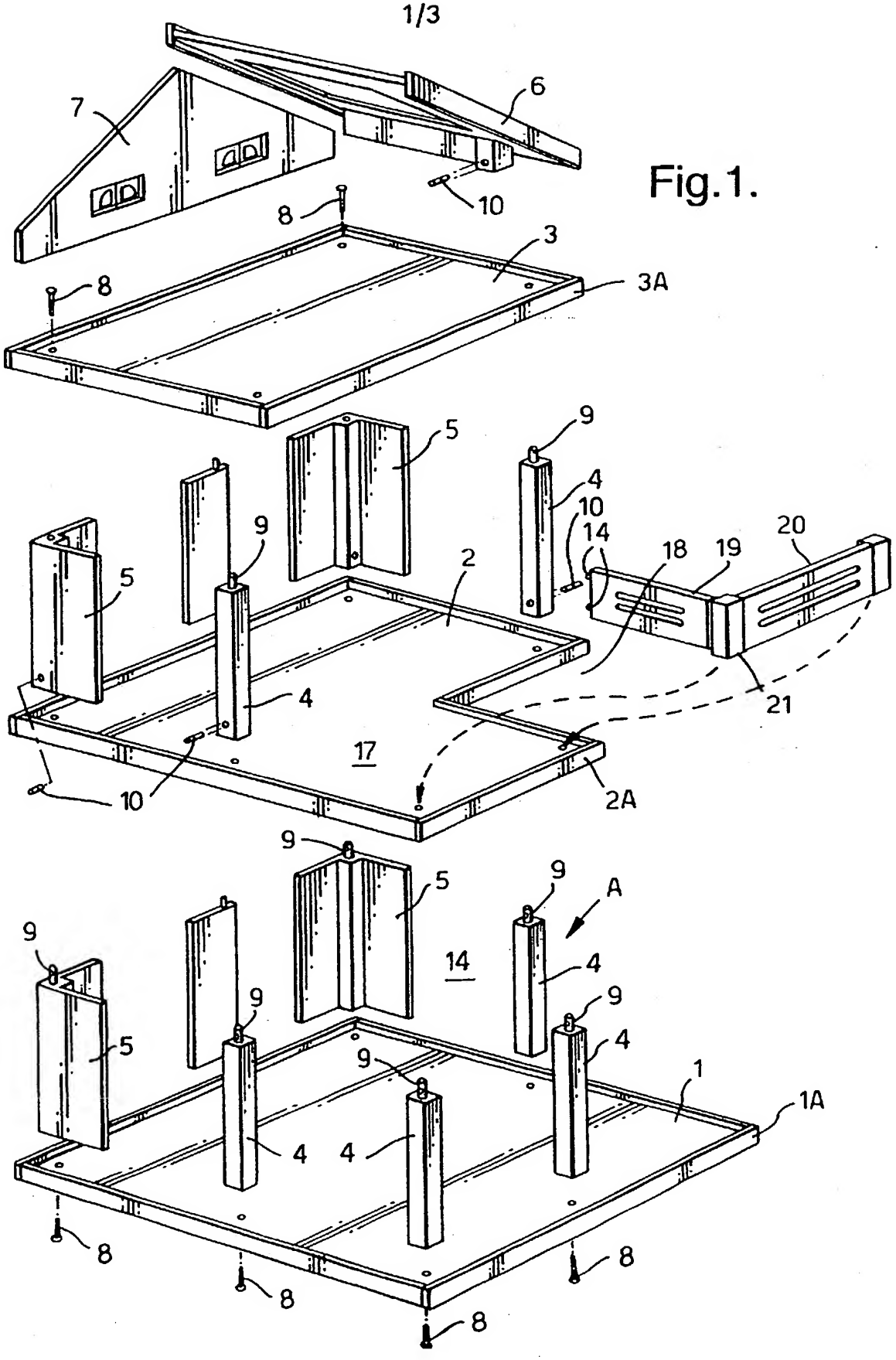
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1A
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Fig.1.

Fig.2.

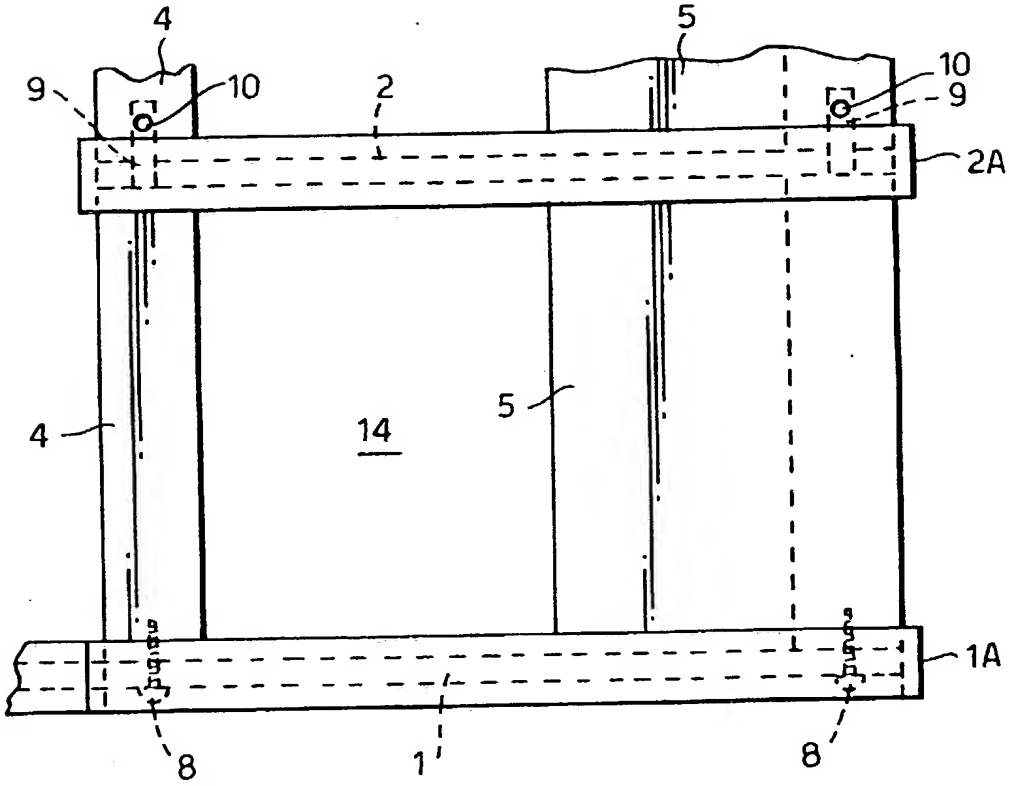


Fig.3A.

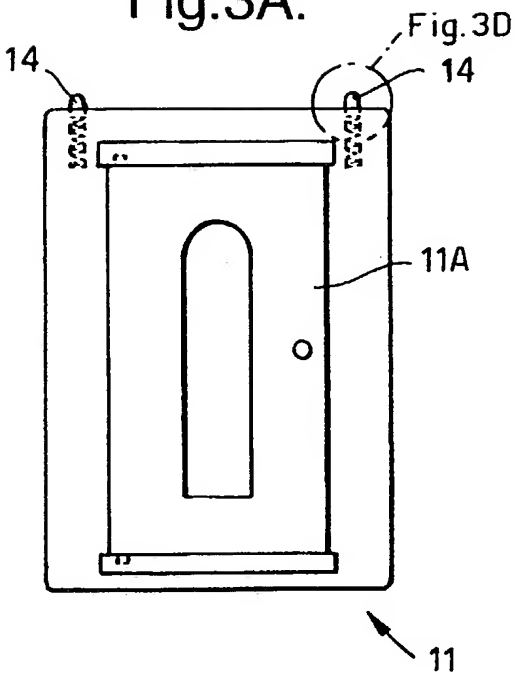


Fig.3B.

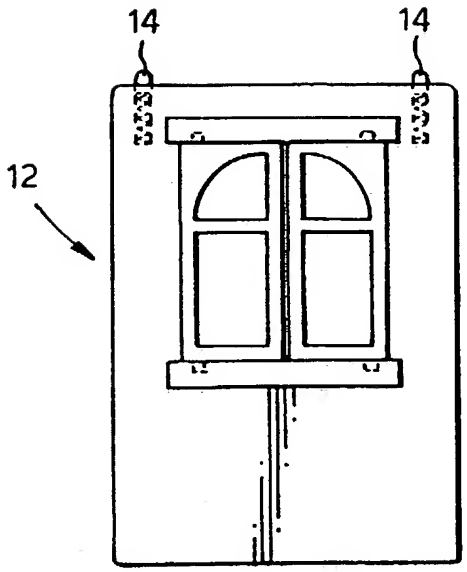


Fig.3C.

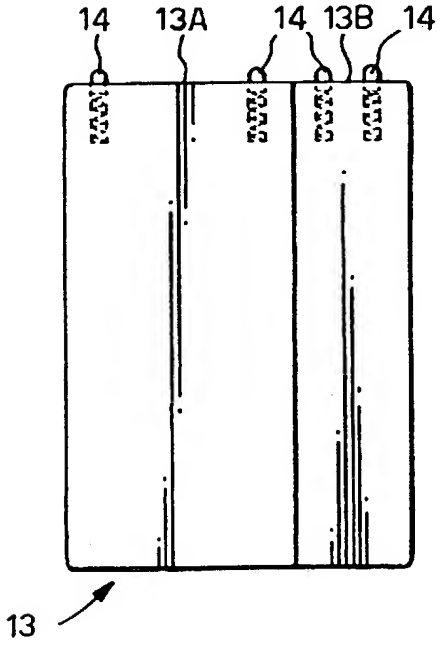
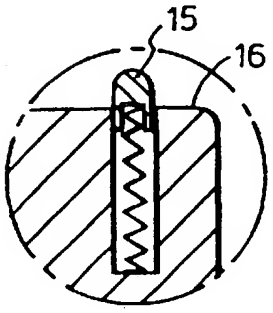


Fig.3D.



DOLL HOUSE

This invention relates to toys and more particularly though not solely to miniature play buildings such as doll houses.

Miniature play buildings such as doll houses are well known and have been in existence for many generations. Traditionally a doll house resembles a "real" house and includes walls, floor (or floors) and a roof. The doll house is used as a receptacle for miniature furniture and fittings and of course dolls. During play a user manipulates the dolls, furniture and fittings of the house and to a limited extent parts of the house itself. For example, doll houses are known wherein doors and windows are able to be opened and closed while the roof and/or entire walls may be removed and refitted in the same place. However, in these prior doll houses, it is only possible to manipulate these features of the doll house itself to a limited extent. It would be advantageous to increase the available degree of user manipulation of the features of the doll house itself to thereby allow the user's imagination to be extended and further increase the enjoyment and education gained by the user.

It is an object of the present invention to provide a miniature play building that will go at least some way towards meeting the above desiderata or which will at least provide the public with a useful choice.

Accordingly, the present invention consists in a miniature play building comprising:

a building skeleton including at least a floor panel, a ceiling panel and pillar means holding the floor and ceiling panels apart; and

at least one removable panel of predetermined shape removably positionable within a space between ceiling, floor and pillar means to at least in part create an internal or external wall in the miniature play building, the removable panel including at least one retractable

engaging projection projecting from an edge thereof which is biassed to normally extend from the edge of the removable panel but which may be retracted substantially within the removable panel in order for the removable panel to be positioned between the ceiling and floor and then released to engage the floor or ceiling to thereby hold the removable panel in position.

A particular embodiment of the invention will now be described with reference to the accompanying drawings in which:

Figure 1 is an exploded perspective view of the building skeleton of a miniature house according to a particular embodiment of the present invention;

Figure 2 is a close-up side elevation of one side of the lower floor of the miniature house of Figure 1 in the direction of arrow A;

Figure 3A is a front elevation of a door panel for insertion into a space between the fixed wall beams of Figure 2;

Figure 3B is a front elevation of a window panel for insertion into a space between the fixed wall beams of Figure 2;

Figure 3C is a front elevation of a wall panel for insertion into a space between the fixed wall beams of Figure 2; and

Figure 3D is a close-up cross-sectional view of one of the retractable engaging projections of the panel of Figure 3A.

With reference to the drawings and in particular Figure 1, a building skeleton of a miniature building or doll house in accordance with the present invention is shown. The building skeleton is preferably manufactured as a kit-set for ease of assembly. The building skeleton includes at least one floor, a ceiling and fixed pillar means or beams separating the floor and ceiling.

The particular embodiment shown in Figure 1 has a first floor panel 1, a second floor panel 2 and a ceiling

panel 3. Various pillar means are provided between the first 1 and second 2 floor panels and also between the second floor panel 2 and the ceiling panel 3. For example, regular square cross-sectional pillars 4 and combination regular and wall panel pillars 5 are provided. Roof panels 6 (only one of which are shown for clarity) are also included in the embodiment shown in Figure 1 as well as a single roof side panel 7 including built in windows. Edging 1A, 2A and 3A is provided around the edges of the respective first, second and ceiling panels.

Each of the aforementioned building skeleton components are assembled together and fixed in position by, for example screws 8 to connect the lower floor pillar means and lower floor panel 1. In order to connect the second floor panel 2 and the first floor panel 1, holes are provided in the second floor panel into which dowels 9, which project from the top of the lower floor pillar means 4, are inserted. Holes drilled into the bases of the second floor pillar means 4 receive the dowels 9 from the first floor pillar means. The bases of the second floor pillar means 4 and each of the dowels 9 have substantially horizontally oriented holes provided therein which, when the skeleton is assembled correctly, are aligned and allow insertion of pins 10 to fix the first and second floor pillars and the second floor panel together.

The ceiling panel 3 is fixed in the building skeleton using a combination of screws 8 and the dowel/pin combination described above. It should however be realised that the specific fastening system used to secure the various components of the building skeleton together are not essential to the present invention.

It can be seen that the building skeleton includes a number of openings. Openings are provided between adjacent pillar means, opposite the roof side panel 7 and also in each of the roof panels 6. The openings allow a user to obtain access to the inside of the doll house to add and manipulate miniature furniture, fittings and dolls while

playing with the doll house. However, the present invention also provides the user with the opportunity to alter the physical structure and appearance of the doll house itself by adding, moving and exchanging removable panels in each of the openings (except perhaps for the opening opposite the roof side panel 7 in the example shown).

Figures 3A, 3B and 3C show respectively a door panel 11, a window panel 12 and a wall panel 13. Each of the removable panels 11, 12 and 13 are of the same dimensions in order to fit within the same spaces. The wall panel 13 of Figure 3C may (as shown) be made of two smaller solid wall panels 13A and 13B or may be one solid panel. A number of the window panels 12, wall panels and door panels 11 are provided for the doll house according to the invention. To provide a pleasing visual effect, the various movable parts of the removable panels (for example, the door and the window shutters) may be coloured differently on each panel. The door 11 and window 12 panels are similar to the solid wall panel but have an opening formed therein, a larger opening for the door panel and a smaller opening for the window panel. The opening in the door panel 11 is covered in use by a door 11A which is pivotally mounted to the door panel so that it may be opened and closed by the user as desired. The opening in window panel 12 is covered by window shutters 12A which are pivotally mounted in the window panel so that they may be opened and closed by the user as desired.

As shown in Figure 2, a space 14 is provided in the building skeleton between regular pillar 4 and combination pillar 5. The dimensions of the space are slightly larger than the dimensions of the door 11, window 12 and solid wall 13 panels. Because the edging 1A, 2A and 3A is wider than the width of the floor and ceiling panels, a lip or rim is provided around the perimeter of each of these panels on both the upper and lower sides thereof. The lip assists in positioning the pillar means during construction

of the building skeleton and also assists in holding the removable panels in place by providing a "stop". As the removable wall panels are substantially the same height as the pillar means 4 and 5, the lips will not allow the removable panels to be removed outwardly and therefore provide support to the removable panels.

In order to provide further support to the removable panels and to stop the panels from simply tilting backwards and falling out of the opening in the building skeleton, retractable engaging projections 14 are provided in an edge of the removable panels 11, 12 and 13. The retractable engaging projections 14 are preferably provided in the upper edge of each of the panels (as shown in the figures), however the projections 14 could alternatively be provided in the bottom or either side edge or in more than one edge.

As shown best in Figure 3D, the retractable engaging projections 14 comprise a dowel 15 mounted within a hole drilled in the edge of the removable wall panel 11, 12 or 13. The dowel 15 is held within the hole by a spring 16 which is fixed (preferably glued) at the base of the hole and fixed within a hole formed in the base of the dowel 15, preferably also by gluing. The dowel 15 in its normal position is biassed out of the hole but may be pushed, against the restoring force of spring 16, into the hole. Preferably two retractable engaging projections are provided for each removable wall panel 11, 12 and 13.

To install one of the removable panels 11, 12 or 13, it is a simple matter of positioning the bottom of the removable panel in the bottom of an appropriate opening and then tilting the removable panel so that the top edge approaches its desired position. The dowels 15 first come into contact with the surface of the floor or ceiling panel above, but upon further tilting towards an upright position are retracted within their hole. When the removable panel is in its upright installed position, the dowels 16 still contact the adjacent surface of the ceiling or floor panel above and are forced thereagainst by spring 16. Friction

between dowels 16 and the abutting ceiling or floor panel ensures that the removable panel is held firmly in position. Small depressions could be formed in the floor or ceiling panel to receive the dowels 15 to improve the retention of the removable panel within the building skeleton.

Removal of one of the removable panels is the reverse of the installation process and is easily accomplished. The user need only overcome the frictional coupling between dowels 15 and the adjacent floor or ceiling panel by gently pushing against the removable panel in order to remove it, making it available for insertion within an alternative opening in the building skeleton.

In addition to (or instead of) removable and interchangeable external wall panels, windows and doors, removable and interchangeable internal wall partitions may also be provided utilising the same spring-loaded dowel connection mechanism.

Preferably each of the components (except for screws 8) of the miniature building of the present invention are manufactured from wood.

It can be seen in Figure 1 that the first floor panel 2 is an "L" shape to provide a terrace section 17 and an open area 18. The open area 18 is suited for mounting stairs (not shown) which may conveniently be designed to hook over the lip of the second floor panel 2. The terrace section 17 is provided with two rail members 19 and 20. It can be seen that rail member 19 is provided at one end with retractable engaging projections 14 which removably hold it in position between pillar 4 and a short pillar 21 in the same way that the removable panels 11, 12 and 13 may be held in position.

Accordingly, at least in its preferred form, the present invention provides a miniature building that is fun to play with. The present invention is also educational for children and promotes hand eye co-ordination. The possibility of removing and refitted the removable panels

also stimulates the imagination of the user who is able to, for example, place a door panel 11 in the opening in the roof panel, and to then contemplate, or be advised on (by an adult for example), whether this is a desirable position for the door to be in.

CLAIMS

1. A miniature play building comprising:

a building skeleton including at least a floor panel, a ceiling panel and pillar means holding the floor and ceiling panels apart; and

at least one removable panel of predetermined shape removably positionable within a space between ceiling, floor and pillar means to at least in part create an internal or external wall in the miniature play building, the removable panel including at least one retractable engaging projection projecting from an edge thereof which is biassed to normally extend from the edge of the removable panel but which may be retracted substantially within the removable panel in order for the removable panel to be positioned between the ceiling and floor and then released to engage the floor or ceiling to thereby hold the removable panel in position.

2. A miniature play building as claimed in claim 1, wherein said removable panel is a wall forming panel.

3. A miniature play building as claimed in claim 1 or claim 2, wherein said removable panel includes an opening which forms a window or a door in the building skeleton.

4. A miniature play building as claimed in any one of the preceding claims, wherein the building skeleton also includes a roof which includes at least one opening dimensioned to allow insertion of said removable panel.

5. A miniature play building as claimed in any one of the preceding claims, wherein a number of said removable panels are provided, at least one of which includes a door opening and has a movable door connected thereto, at least one other of which includes a window opening and has a movable window or shutter connected thereto and at least one other of which is a solid wall panel with no opening, the different types of panel being interchangeable in the building skeleton.

6. A miniature play building as claimed in any one of the preceding claims, wherein said retractable engaging projection comprises a dowel which extends from a hole in the end of the removable panel and a spring means provided within the hole and connected to the end of the dowel within the hole.

7. A miniature play building as claimed in any one of the preceding claims, wherein two retractable engaging projections are provided along one edge of each removable panel.

8. A miniature play building as claimed in any one of the preceding claims, wherein the retractable engaging projections engage with receiving features on the adjacent part of the building skeleton.

9. A miniature play building substantially as herein described with reference to and as illustrated by the accompanying drawings.

INVESTOR IN PEOPLE

Application No:	GB 0030288.5	**Examiner:**	Matthew Jefferson
Claims searched:	1 to 9	**Date of search:**	12 June 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): A6S

Int Cl (Ed.7): A63H 3/52, 33/04.

Other: Online: EPODOC, PAJ, WPI.

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
A	WO 97/18872 A1	(LEGO A/S) See abstract and figures.	1.
A	WO 94/20185 A1	(SVINDT) See abstract and figures.	1.
A	US 5681201 A	(CHOI) See abstract and figures.	1.
A	DE 2651471 A1	(EVERS) See figures.	1.
A	DE 8901306 U	(ZEITEL) See figures.	1.
A	FR 2362649 A	(IZOARD ET AL.) See figures.	1.

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.